

Please add the following new claims:

--New Claim 26. Imaging apparatus for imaging a particular volume of plant or animal tissue containing at least one photo-active molecular agent, the apparatus comprising:

a source of collimated light, said light having a frequency effective to penetrate substantially into the tissue, said light being adapted to promote simultaneous two-photon excitation (TPE) of the molecular agent contained within the tissue;

focusing apparatus for focusing the collimated light throughout a range of focal lengths extending from a surface of said tissue to a depth substantially beyond said surface, said light source and focusing apparatus cooperating to promote TPE of the molecular agent,

wherein a focal point or focal plane is adjustable with respect to said tissue; and

a detector located proximate to the tissue and positioned to detect said light emitted by the molecular agent and which travels a path that does not retrace an optical path of the light incident on the tissue, said detector configured to produce a detected signal characteristic of the particular volume at which the light source has been focused.--

--New Claim 27. The apparatus of Claim 26 wherein said light source produces a pulsed output having a pulse repetition frequency above about 75 megahertz and a sub-nanosecond pulse duration.--

--New Claim 28. The apparatus of Claim 27 wherein said light source produces near-infrared light.--

--New Claim 29. The apparatus of Claim 28 wherein said light source produces pulse energies of about 20 nanojoules.--

--New Claim 30. The apparatus of Claim 28 wherein said light source comprises a laser.--

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--New Claim 31. The apparatus of Claim 26 further comprising a processor coupled to said detector.--

--New Claim 32. The apparatus of Claim 31 further comprising a modulation system associated with said light source, said processor being coupled to said modulation system.--

--New Claim 33. Apparatus for medical diagnostic imaging comprising:  
light source means for directing a confined light at and into deep tissue to be imaged, said light being selected in frequency and energy to penetrate below a tissue surface and to promote TPE substantially only at a confocal region;

means for varying a position of a confocal region of the light within a range of depths in the tissue to be imaged; and

detector means positioned to receive and detect isotropic radiation emitted by a photo-activated molecular agent within the tissue after said agent has been excited using two-photon excitation.--

--New Claim 34. The apparatus of Claim 33: